U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

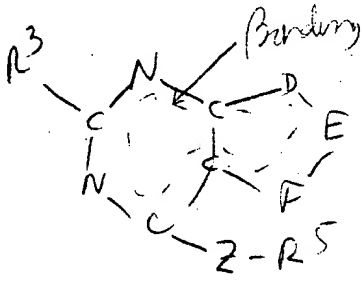
SEARCH REQUEST FORM

Requestor's Name: Berel Serial Number: 764111

Date: 7/7/97 Phone: 4718 Art Unit: 1202

Search Topic:

Please write a detailed statement of search topic. Describe specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples or relevent citations, authors, keywords, etc., if known. For sequences, please attach a copy of the sequence. You may include a copy of the broadest and/or most relevent claim(s).

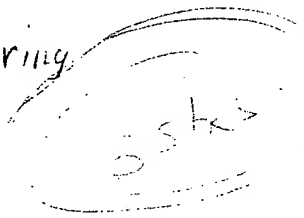


① Exactly one of D/E/F = N; other 2 are carbon (i.e. 3 isomers)

R^3 = H | C-not-in-a-ring | (O)C_{1-4} alkyl | Hal | [redacted]

Z = N/O/S/C
↑ not in a ring

R5 = C-in-a-ring



NAP

BEST AVAILABLE COPY

STAFF USE ONLY

Date completed: 7/8

Searcher: Michelle Kaplan

Terminal time: @ 10

Elapsed time: _____

CPU time: _____

Total time: _____

Number of Searches: _____

Number of Databases: _____

Search Site

_____ STIC
_____ CM-1
_____ Pre-S

Type of Search

_____ N.A. Sequence
_____ A.A. Sequence
_____ Structure
_____ Bibliographic

Vendors

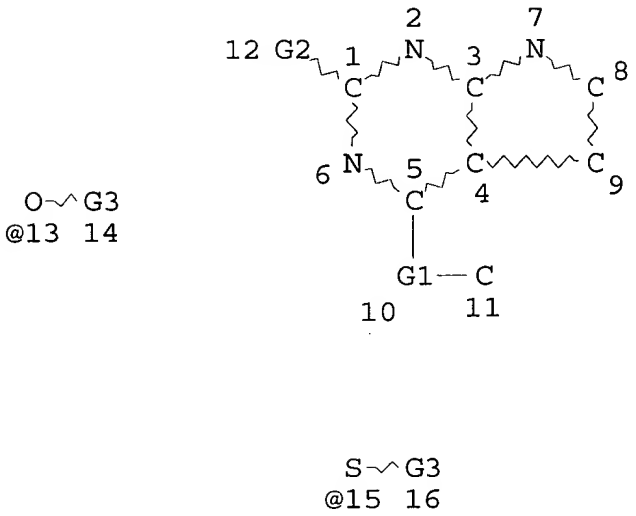
_____ IG
✓ STN
_____ Dialog
_____ APS
_____ Geninfo
_____ SDC
_____ DARC/Questel
_____ Other

cancel 7/8 PS

PTO-1560 (9-90)

BERCH
764111

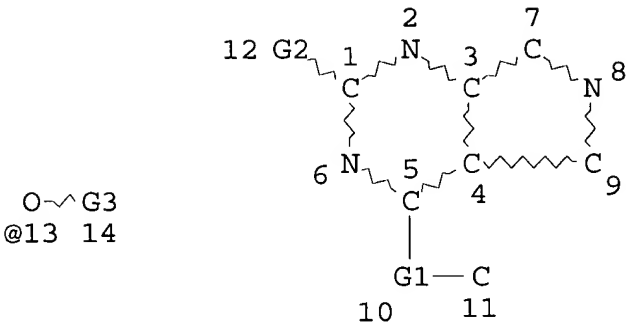
=> d l8 que stat;d 1-23 ide cbib abs
L1 STR

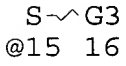


VAR G1=N/O/S/C
VAR G2=H/C/13/15/X
VAR G3=ME/ET/I-PR/N-PR/T-BU/S-BU/I-BU/N-BU
NODE ATTRIBUTES:
NSPEC IS R AT 11
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 16

STEREO ATTRIBUTES: NONE
L3 STR

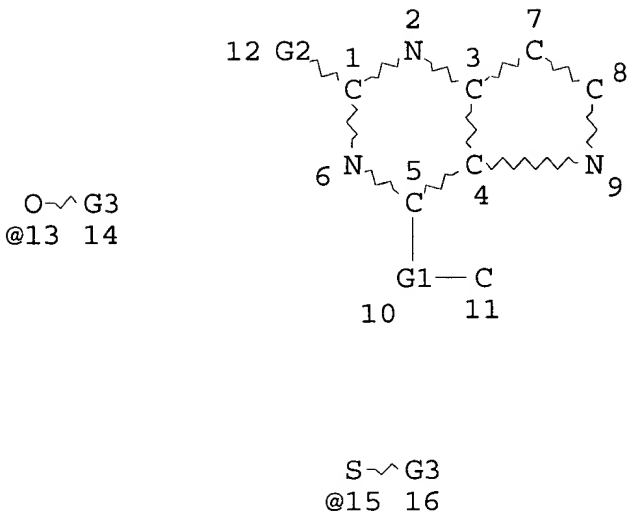




VAR G1=N/O/S/C
VAR G2=H/C/13/15/X
VAR G3=ME/ET/I-PR/N-PR/T-BU/S-BU/I-BU/N-BU
NODE ATTRIBUTES:
NSPEC IS R AT 11
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 16

STEREO ATTRIBUTES: NONE
L5 STR



VAR G1=N/O/S/C
VAR G2=H/C/13/15/X
VAR G3=ME/ET/I-PR/N-PR/T-BU/S-BU/I-BU/N-BU
NODE ATTRIBUTES:
NSPEC IS R AT 11
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

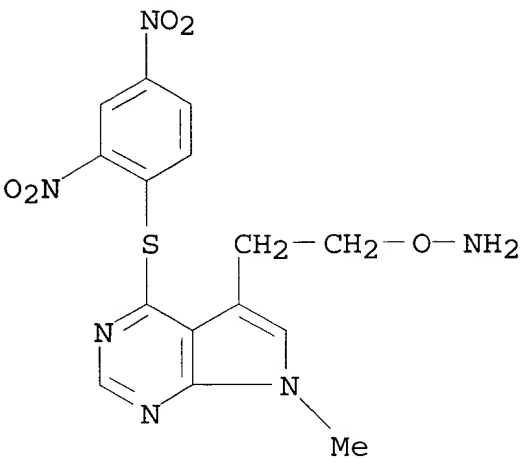
GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 16

STEREO ATTRIBUTES: NONE
L8 23 SEA FILE=REGISTRY SSS FUL L1 OR L3 OR L5

100.0% PROCESSED 5295 ITERATIONS 23 ANSWERS
SEARCH TIME: 00.00.12

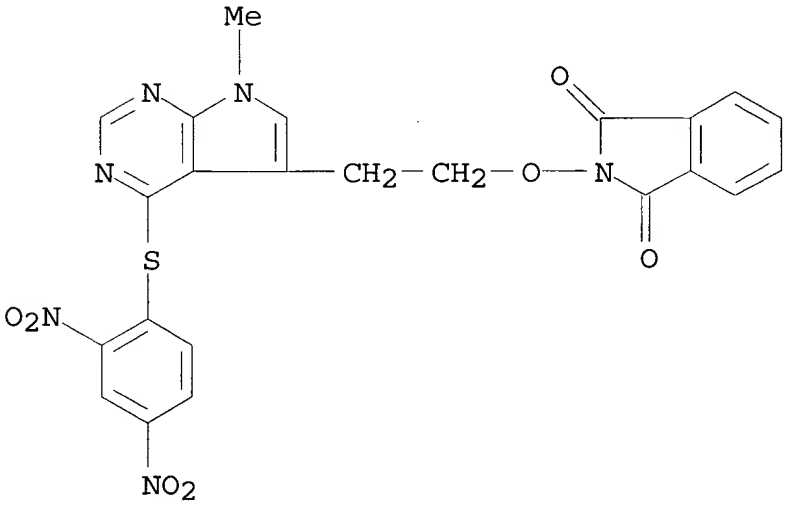
L8 ANSWER 1 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 190771-74-5 REGISTRY
CN INDEX NAME NOT YET ASSIGNED
FS 3D CONCORD
MF C15 H14 N6 O5 S
SR CA
LC STN Files: CAPLUS

Searched By: Mary Hale 308-4258



1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

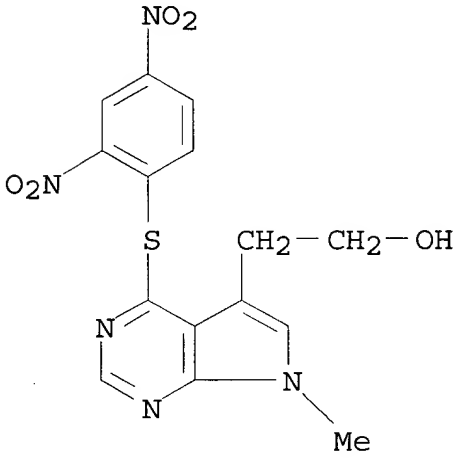
L8 ANSWER 2 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 190771-73-4 REGISTRY
CN INDEX NAME NOT YET ASSIGNED
FS 3D CONCORD
MF C23 H16 N6 O7 S
SR CA
LC STN Files: CAPLUS



1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

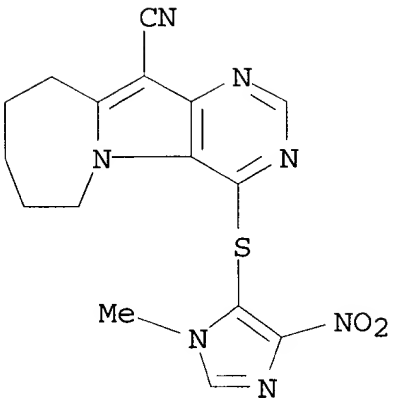
L8 ANSWER 3 OF 23 REGISTRY COPYRIGHT 1997 ACS

RN 190771-72-3 REGISTRY
CN INDEX NAME NOT YET ASSIGNED
FS 3D CONCORD
MF C15 H13 N5 O5 S
SR CA
LC STN Files: CAPLUS



1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L8 ANSWER 4 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 178307-21-6 REGISTRY
CN 6H-Pyrimido[4',5':4,5]pyrrolo[1,2-a]azepine-11-carbonitrile, 7,8,9,10-tetrahydro-4-[(1-methyl-4-nitro-1H-imidazol-5-yl)thio]- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C16 H15 N7 O2 S
SR CA
LC STN Files: CA, CAPLUS, TOXLIT

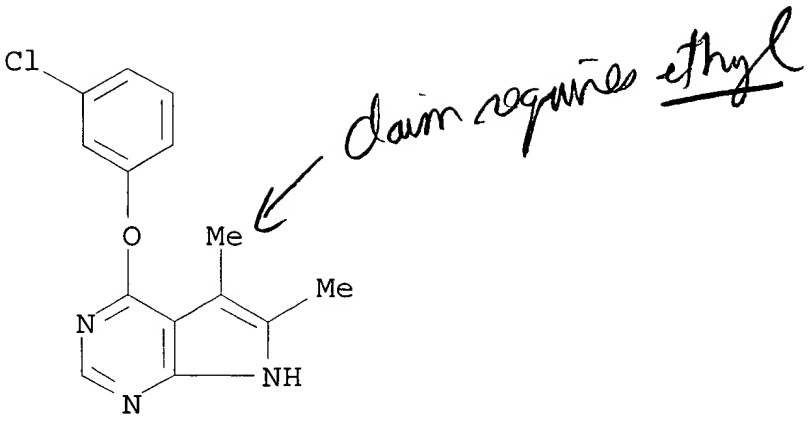


1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 125:48517 Acetals of acid lactams and amides. 74. Examining the synthesis and antitumor action of 5,6 polymethylenepyrrolo [3,2-d] pyrimidines. Kadushkin, A. V.; Sokolova, A. S.; Solovyeva, N. P.; Granik, V. G. (TSKhLS, VNIKhFI, Moscow, Russia). Khim.-Farm. Zh., 28(11), 15-19 (Russian) 1994. CODEN: KHFZAN. ISSN: 0023-1134.

AB Conditions of pyrimidine cyclization as well as roles of ethoxycarbonyl group and of the polymethylene chain in antitumor activity were studied.

L8 ANSWER 5 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 176915-58-5 REGISTRY
CN 1H-Pyrrolo[2,3-d]pyrimidine, 4-(3-chlorophenoxy)-5,6-dimethyl- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C14 H12 Cl N3 O
SR CA
LC STN Files: CA, CAPLUS, TOXLIT



claim requires ethyl

NG

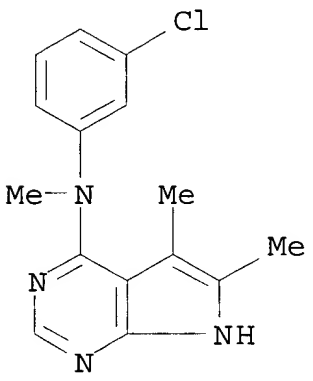
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 124:331709 4-(Phenylamino)pyrrolopyrimidines: Potent and Selective, ATP Site Directed Inhibitors of the EGF-Receptor Protein Tyrosine Kinase. Traxler, Peter M.; Furet, Pascal; Mett, Helmut; Buchdunger, Elisabeth; Meyer, Thomas; Lydon, Nicholas (Cancer and Bone Metabolism Research Department, CIBA Limited, Basel, CH-4002, Switz.). J. Med. Chem., 39(12), 2285-2292 (English) 1996. CODEN: JMCMAR. ISSN: 0022-2623.

AB Using a pharmacophore model for ATP-competitive inhibitors interacting with the active site of the EGF-R protein tyrosine kinase (PTK), 4-(phenylamino)-7H-pyrrolo[2,3-d]pyrimidines have been identified as a novel class of potent EGF-R protein tyrosine kinase inhibitors. In an interactive process, this class of compds. was then optimized. The most potent compds. of this series inhibited the EGF-R PTK with IC50 values in the low nanomolar range. High selectivity toward a panel of nonreceptor tyrosine kinases (c-Src, v-Abl) and serine/threonine kinases (PKC .alpha., PKA) was obsd. Kinetic anal. revealed competitive type kinetics relative to ATP. In cells, EGF-stimulated cellular tyrosine phosphorylation was inhibited by 4 compds. at IC50 values between 0.1 and 0.4 .mu.M, whereas PDGF-induced tyrosine phosphorylation was not affected by concns. up to 10 .mu.M. In addn., these compds. were able to selectively inhibit c-fos mRNA expression in EGF-dependent cell lines with IC50 values between 0.1 and 2 .mu.M, but did not affect c-fos mRNA induction in response to PDGF or PMA (IC50 >100 .mu.M). Proliferation of the EGF-dependent MK cell line was inhibited with similar IC50 values. From SAR studies, a binding mode for 4-(phenylamino)-7H-pyrrolo[2,3-d]pyrimidines as well as for the structurally related 4-(phenylamino)quinazolines at the ATP-binding site of the EGF-R tyrosine kinase is proposed. 4-(Phenylamino)-7H-

pyrrolo[2,3-d]pyrimidines therefore represent a new class of highly potent tyrosine kinase inhibitors which preferentially inhibit the EGF-mediated signal transduction pathway and have the potential for further evaluation as anticancer agents.

L8 ANSWER 6 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 176915-57-4 REGISTRY
CN 1H-Pyrrolo[2,3-d]pyrimidin-4-amine, N-(3-chlorophenyl)-N,5,6-trimethyl- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C15 H15 Cl N4
SR CA
LC STN Files: CA, CAPLUS, TOXLIT



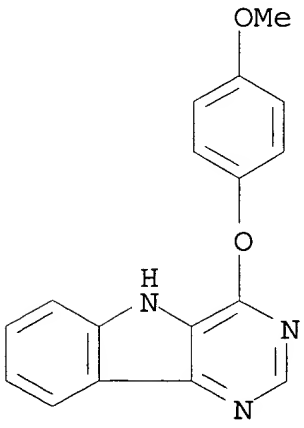
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 124:331709 4-(Phenylamino)pyrrolopyrimidines: Potent and Selective, ATP Site Directed Inhibitors of the EGF-Receptor Protein Tyrosine Kinase. Traxler, Peter M.; Furet, Pascal; Mett, Helmut; Buchdunger, Elisabeth; Meyer, Thomas; Lydon, Nicholas (Cancer and Bone Metabolism Research Department, CIBA Limited, Basel, CH-4002, Switz.). J. Med. Chem., 39(12), 2285-2292 (English) 1996. CODEN: JMCMAR. ISSN: 0022-2623.

AB Using a pharmacophore model for ATP-competitive inhibitors interacting with the active site of the EGF-R protein tyrosine kinase (PTK), 4-(phenylamino)-7H-pyrrolo[2,3-d]pyrimidines have been identified as a novel class of potent EGF-R protein tyrosine kinase inhibitors. In an interactive process, this class of compds. was then optimized. The most potent compds. of this series inhibited the EGF-R PTK with IC50 values in the low nanomolar range. High selectivity toward a panel of nonreceptor tyrosine kinases (c-Src,

v-Abl) and serine/threonine kinases (PKC .alpha., PKA) was obsd. Kinetic anal. revealed competitive type kinetics relative to ATP. In cells, EGF-stimulated cellular tyrosine phosphorylation was inhibited by 4 compds. at IC50 values between 0.1 and 0.4 .mu.M, whereas PDGF-induced tyrosine phosphorylation was not affected by concns. up to 10 .mu.M. In addn., these compds. were able to selectively inhibit c-fos mRNA expression in EGF-dependent cell lines with IC50 values between 0.1 and 2 .mu.M, but did not affect c-fos mRNA induction in response to PDGF or PMA (IC50 >100 .mu.M). Proliferation of the EGF-dependent MK cell line was inhibited with similar IC50 values. From SAR studies, a binding mode for 4-(phenylamino)-7H-pyrrolo[2,3-d]pyrimidines as well as for the structurally related 4-(phenylamino)quinazolines at the ATP-binding site of the EGF-R tyrosine kinase is proposed. 4-(Phenylamino)-7H-pyrrolo[2,3-d]pyrimidines therefore represent a new class of highly potent tyrosine kinase inhibitors which preferentially inhibit the EGF-mediated signal transduction pathway and have the potential for further evaluation as anticancer agents.

L8 ANSWER 7 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 132994-30-0 REGISTRY
CN 5H-Pyrimido[5,4-b]indole, 4-(4-methoxyphenoxy)- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C17 H13 N3 O2
SR CA
LC STN Files: BEILSTEIN*, CA, CAPLUS
(*File contains numerically searchable property data)

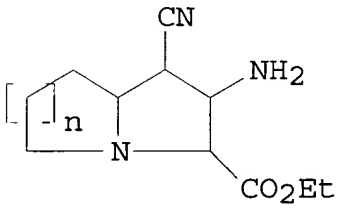


1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

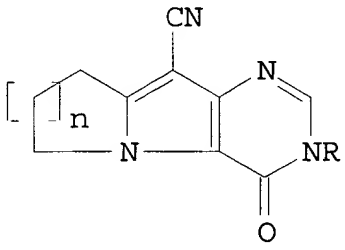
Searched By: Mary Hale 308-4258

REFERENCE 1: 114:164140 Condensed pyrrolo[3,2-d]pyrimidines: synthesis and biological activity. Kadushkin, A. V.; Nesterova, I. N.; Golovko, T. V.; Nikolaeva, I. S.; Pushkina, T. V.; Fomina, A. N.; Sokolova, A. S.; Chernov, V. A.; Granik, V. G. (VNIKhFI, Moscow, USSR). Khim.-Farm. Zh., 24(12), 18-22 (Russian) 1990. CODEN: KHFZAN. ISSN: 0023-1134.

GI



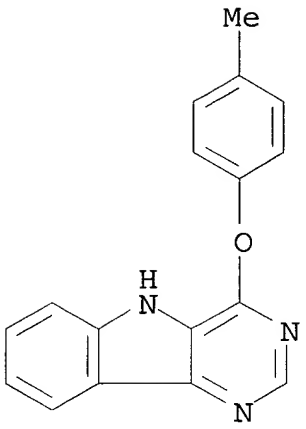
I



II

AB Intramol. Thorpe-Ziegler cyclization was used to prep. 3-cyano-4-amino-5-(ethoxycarbonyl)-1,2-polymethylene pyrrole derivs., e.g. I (n = 1, 2, 3) which were then used in the synthesis of 5,6-polymethylene derivs. of pyrrolo[3,2-d]pyrimidines, e.g. II (R = H, PhCH2, n = 2, 3). The compds. were tested for virucidal and neoplasm-inhibiting activity.

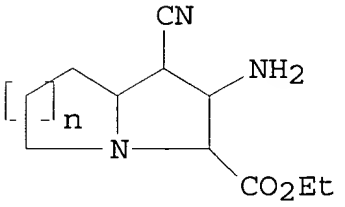
L8 ANSWER 8 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 132994-29-7 REGISTRY
CN 5H-Pyrimido[5,4-b]indole, 4-(4-methylphenoxy)- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C17 H13 N3 O
SR CA
LC STN Files: BEILSTEIN*, CA, CAPLUS
(*File contains numerically searchable property data)



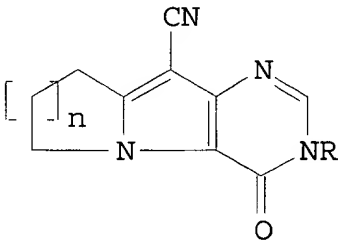
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 114:164140 Condensed pyrrolo[3,2-d]pyrimidines: synthesis and biological activity. Kadushkin, A. V.; Nesterova, I. N.; Golovko, T. V.; Nikolaeva, I. S.; Pushkina, T. V.; Fomina, A. N.; Sokolova, A. S.; Chernov, V. A.; Granik, V. G. (VNIKhFI, Moscow, USSR). Khim.-Farm. Zh., 24(12), 18-22 (Russian) 1990. CODEN: KHFZAN. ISSN: 0023-1134.

GI



I

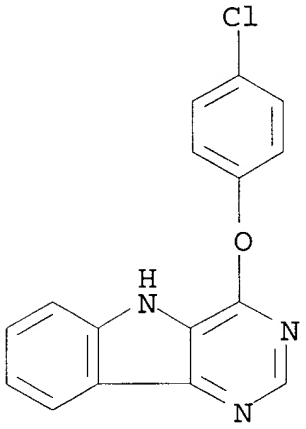


II

AB Intramol. Thorpe-Ziegler cyclization was used to prep. 3-cyano-4-amino-5-(ethoxycarbonyl)-1,2-polymethylene pyrrole derivs., e.g. I (n = 1, 2, 3) which were then used in the synthesis of 5,6-polymethylene derivs. of pyrrolo[3,2-d]pyrimidines, e.g. II (R = H, PhCH2, n = 2, 3). The compds. were tested for virucidal and neoplasm-inhibiting activity.

L8 ANSWER 9 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 132994-28-6 REGISTRY

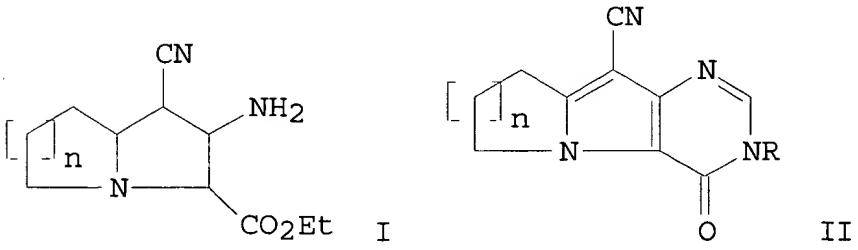
CN 5H-Pyrimido[5,4-b]indole, 4-(4-chlorophenoxy)- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C16 H10 Cl N3 O
SR CA
LC STN Files: BEILSTEIN*, CA, CAPLUS
(*File contains numerically searchable property data)



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 114:164140 Condensed pyrrolo[3,2-d]pyrimidines: synthesis and biological activity. Kadushkin, A. V.; Nesterova, I. N.; Golovko, T. V.; Nikolaeva, I. S.; Pushkina, T. V.; Fomina, A. N.; Sokolova, A. S.; Chernov, V. A.; Granik, V. G. (VNIKhFI, Moscow, USSR). Khim.-Farm. Zh., 24(12), 18-22 (Russian) 1990. CODEN: KHFZAN. ISSN: 0023-1134.

GI

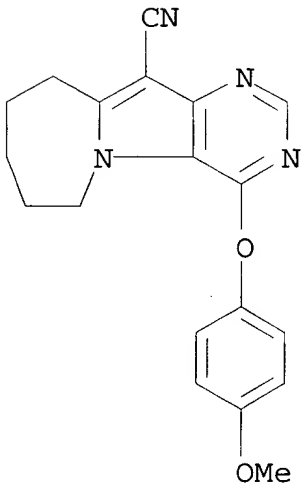


AB Intramol. Thorpe-Ziegler cyclization was used to prep.

Searched By: Mary Hale 308-4258

3-cyano-4-amino-5-(ethoxycarbonyl)-1,2-polymethylene pyrrole derivs., e.g. I (n = 1, 2, 3) which were then used in the synthesis of 5,6-polymethylene derivs. of pyrrolo[3,2-d]pyrimidines, e.g. II (R = H, PhCH2, n = 2, 3). The compds. were tested for virucidal and neoplasm-inhibiting activity.

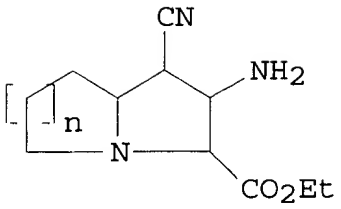
L8 ANSWER 10 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 132994-20-8 REGISTRY
CN 6H-Pyrimido[4',5':4,5]pyrrolo[1,2-a]azepine-11-carbonitrile, 7,8,9,10-tetrahydro-4-(4-methoxyphenoxy)- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C19 H18 N4 O2
SR CA
LC STN Files: BEILSTEIN*, CA, CAPLUS
(*File contains numerically searchable property data)



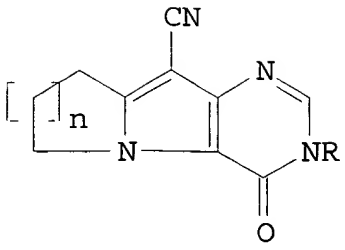
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 114:164140 Condensed pyrrolo[3,2-d]pyrimidines: synthesis and biological activity. Kadushkin, A. V.; Nesterova, I. N.; Golovko, T. V.; Nikolaeva, I. S.; Pushkina, T. V.; Fomina, A. N.; Sokolova, A. S.; Chernov, V. A.; Granik, V. G. (VNIKhFI, Moscow, USSR). Khim.-Farm. Zh., 24(12), 18-22 (Russian) 1990. CODEN: KHFZAN. ISSN: 0023-1134.

GI



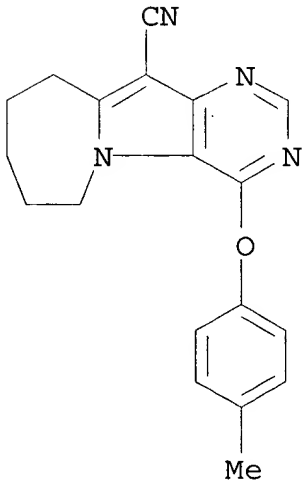
I



II

AB Intramol. Thorpe-Ziegler cyclization was used to prep. 3-cyano-4-amino-5-(ethoxycarbonyl)-1,2-polymethylene pyrrole derivs., e.g. I (n = 1, 2, 3) which were then used in the synthesis of 5,6-polymethylene derivs. of pyrrolo[3,2-d]pyrimidines, e.g. II (R = H, PhCH2, n = 2, 3). The compds. were tested for virucidal and neoplasm-inhibiting activity.

L8 ANSWER 11 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 132994-19-5 REGISTRY
CN 6H-Pyrimido[4',5':4,5]pyrrolo[1,2-a]azepine-11-carbonitrile, 7,8,9,10-tetrahydro-4-(4-methylphenoxy)- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C19 H18 N4 O
SR CA
LC STN Files: BEILSTEIN*, CA, CAPLUS
(*File contains numerically searchable property data)



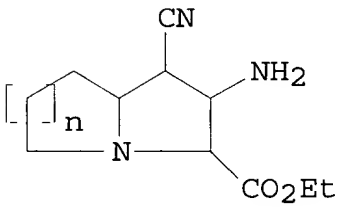
1 REFERENCES IN FILE CA (1967 TO DATE)

Searched By: Mary Hale 308-4258

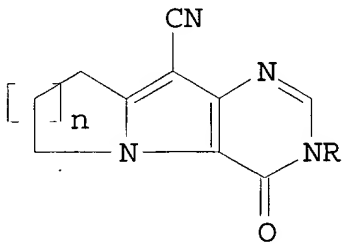
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 114:164140 Condensed pyrrolo[3,2-d]pyrimidines: synthesis and biological activity. Kadushkin, A. V.; Nesterova, I. N.; Golovko, T. V.; Nikolaeva, I. S.; Pushkina, T. V.; Fomina, A. N.; Sokolova, A. S.; Chernov, V. A.; Granik, V. G. (VNIKhFI, Moscow, USSR). Khim.-Farm. Zh., 24(12), 18-22 (Russian) 1990. CODEN: KHFZAN. ISSN: 0023-1134.

GI



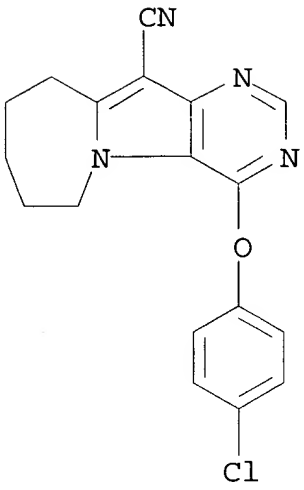
I



II

AB Intramol. Thorpe-Ziegler cyclization was used to prep. 3-cyano-4-amino-5-(ethoxycarbonyl)-1,2-polymethylene pyrrole derivs., e.g. I (n = 1, 2, 3) which were then used in the synthesis of 5,6-polymethylene derivs. of pyrrolo[3,2-d]pyrimidines, e.g. II (R = H, PhCH2, n = 2, 3). The compds. were tested for virucidal and neoplasm-inhibiting activity.

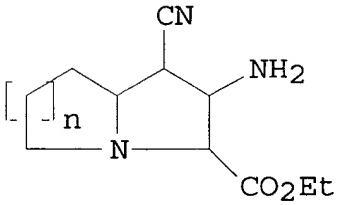
L8 ANSWER 12 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 132994-18-4 REGISTRY
CN 6H-Pyrimido[4',5':4,5]pyrrolo[1,2-a]azepine-11-carbonitrile, 4-(4-chlorophenoxy)-7,8,9,10-tetrahydro- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C18 H15 Cl N4 O
SR CA
LC STN Files: BEILSTEIN*, CA, CAPLUS
(*File contains numerically searchable property data)



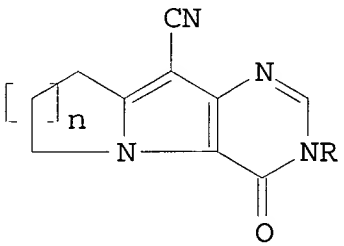
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 114:164140 Condensed pyrrolo[3,2-d]pyrimidines: synthesis and biological activity. Kadushkin, A. V.; Nesterova, I. N.; Golovko, T. V.; Nikolaeva, I. S.; Pushkina, T. V.; Fomina, A. N.; Sokolova, A. S.; Chernov, V. A.; Granik, V. G. (VNIKhFI, Moscow, USSR). Khim.-Farm. Zh., 24(12), 18-22 (Russian) 1990. CODEN: KHFZAN. ISSN: 0023-1134.

GI



I

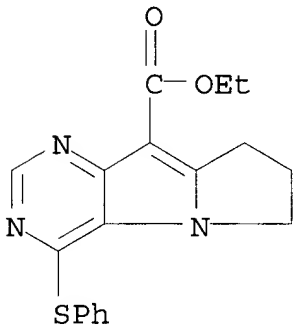


II

AB Intramol. Thorpe-Ziegler cyclization was used to prep. 3-cyano-4-amino-5-(ethoxycarbonyl)-1,2-polymethylene pyrrole derivs., e.g. I (n = 1, 2, 3) which were then used in the synthesis of 5,6-polymethylene derivs. of pyrrolo[3,2-d]pyrimidines, e.g. II (R = H, PhCH2, n = 2, 3). The compds. were tested for virucidal and neoplasm-inhibiting activity.

Searched By: Mary Hale 308-4258

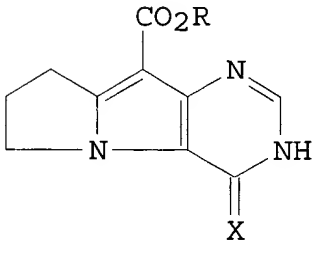
L8 ANSWER 13 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 111038-19-8 REGISTRY
CN 6H-Pyrimido[4,5-b]pyrrolizine-9-carboxylic acid, 7,8-dihydro-4-(phenylthio)-, ethyl ester (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C18 H17 N3 O2 S
SR CA
LC STN Files: CA, CAPLUS, TOXLIT



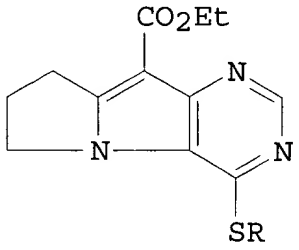
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 107:190445 Synthesis and antitumor activity of 5-mercapto-9-ethoxycarbonyl-1,2-dihydro-3H-pyrimido[5,4-e]pyrrolizine derivatives. Kadushkin, A. V.; Golovko, T. V.; Kalistratov, S. G.; Sokolova, A. S.; Chernov, V. A.; Granik, V. G. (VNIKhFI, Moscow, USSR). Khim.-Farm. Zh., 21(5), 545-50 (Russian) 1987. CODEN: KHFZAN. ISSN: 0023-1134.

GI



I, R=Et, X=S
III, R=H, X=O



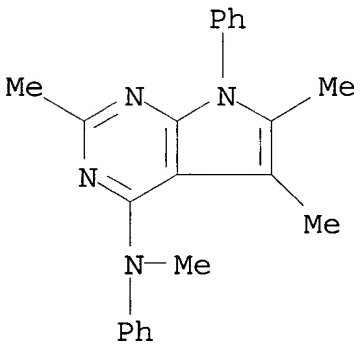
II

AB N-Cyanomethyl-2-[cyano(ethoxycarbonyl)methylene]pyrrolidine, obtained from N-cyanomethyl-2-pyrrolidone di-Et acetal and CNCO2Et

Searched By: Mary Hale 308-4258

was cyclized to the dihydropyrrolizine deriv. Condensation of this compd. with Me2NCH(OEt)2 gave a dimethylaminomethyleneamino deriv. which on treatment with NH4SH gave I. The conversion of I to II (R = H, CO2Et or CO2H) and III is described. A study of the antitumor activity of the compds. in rats showed that I, II and III were nontoxic during i.p. administration. The LD was >500 mg/kg. II (R = H) showed cumulative toxicity; after 3 administrations at 250 mg/kg the animals died. II showed antitumor activity in mice with B-16 melanoma. II (R = CO2Et) also showed activity against carcinoma 755.

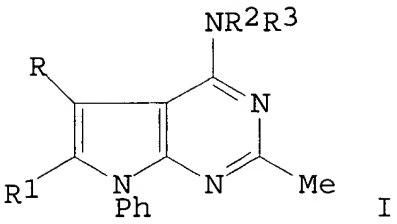
L8 ANSWER 14 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 94742-08-2 REGISTRY
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine, N,2,5,6-tetramethyl-N,7-diphenyl- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C22 H22 N4
LC STN Files: CA, CAPLUS, SPECINFO



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 102:78815 Phosphorus pentoxide in organic synthesis. XIII. Synthesis of 7-phenyl-7H-pyrrolo[2,3-d]pyrimidine-4-amines. Joergensen, Anker; Girgis, Nabih S.; Pedersen, Erik B. (Dep. Chem., Odense Univ., Odense, DK-5230, Den.). Chem. Scr., 24(2), 73-9 (English) 1984. CODEN: CSRPB9. ISSN: 0004-2056.

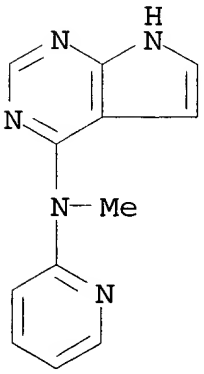
GI



I

AB Substituted N-aryl-7-phenyl-7H-pyrrolo[2,3-d]pyrimidin-4-amines I [R = R1 = Me; RR1 = (CH2)4; R2 = H, R3 = C6H4R4, C6H3Me2-2,6; R4 = H, 2-Me, 3-Me, 4-Me, 2-Et, 2-F, 3-F, 4-F, 2-Cl, 4-Cl] were in a 1-pot synthesis by heating 7-phenyl-7H-pyrrolo[2,3-d]pyrimidin-4(3H)-ones in a mixt. of P2O5, N,N-dimethylcyclohexylamine and (II) at 180-200.degree. for 1-3 h. In contrast, monoalkylamine hydrochlorides reacted with R2R3NH.HCl to give, in all cases, I (R2 = R3 = H), whereas with R22NH.HCl (R2 = Me, Et, Pr), one alkyl radical splits off affording I (R2 = Me, Et, Pr, R3 = H). A mechanism is suggested for the reaction, in the light of which, dealkylation reactions could be accounted for as a result of the formation of six-membered transition state, followed by intramol. elimination. The results from pesticide screenings are reported.

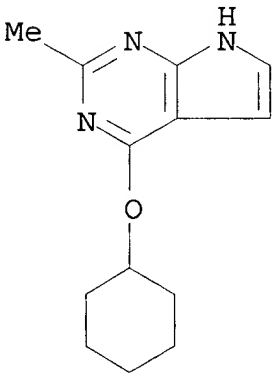
L8 ANSWER 15 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 91843-68-4 REGISTRY
CN 7H-Pyrrolo[2,3-d]pyrimidine, 4-(methyl-2-pyridylamino)- (7CI) (CA INDEX NAME)
FS 3D CONCORD
MF C12 H11 N5
LC STN Files: CAOLD



Searched By: Mary Hale 308-4258

1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

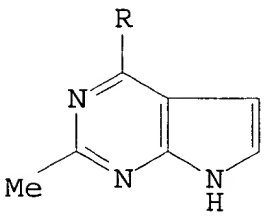
L8 ANSWER 16 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 85251-12-3 REGISTRY
CN 1H-Pyrrolo[2,3-d]pyrimidine, 4-(cyclohexyloxy)-2-methyl- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C13 H17 N3 O
LC STN Files: BEILSTEIN*, CA, CAPLUS, CJACS, TOXLIT
(*File contains numerically searchable property data)



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 98:193273 Quantitative aspects of the receptor binding of cytokinin agonists and antagonists. Iwamura, Hajime; Masuda, Noboru; Koshimizu, Koichi; Matsubara, Satoshi (Fac. Agric., Kyoto Univ., Kyoto, 606, Japan). J. Med. Chem., 26(6), 838-44 (English) 1983. CODEN: JMCMAR. ISSN: 0022-2623.

GI

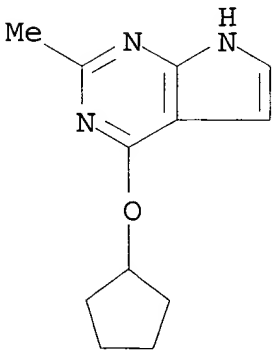


I

AB Congeneric 2-methylpyrrolo[2,3-d]pyrimidines I, (R = anilino- or

alkylamino) showed cytokinin and anticytokinin activities, depending on the structure of their 4-substituents, and the antagonistic nature of the latter was established kinetically. The effect of the substituent on these activities was analyzed quant. by using physicochem. parameters and regression anal. to give a single, common equation for both the agonist and antagonist. The results indicated that the max. width of the N4 substituents is an important factor both for binding to the receptor, thus the extent of activity, and for the quality of activity, agonistic or antagonistic. The electron-withdrawing effect and hydrophobicity of the substituents further enhance binding and, thus, activity, irresp. of the quality of the activity. These results coincide with and/or provide evidence for the hypothesis that in hormonal action, agonist binding causes a conformational change of an otherwise inactive receptor to the active form and that antagonists are species that bind similarly to the receptor but do not cause the effective conformational change.

L8 ANSWER 17 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 85251-11-2 REGISTRY
CN 1H-Pyrrolo[2,3-d]pyrimidine, 4-(cyclopentyloxy)-2-methyl- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C12 H15 N3 O
LC STN Files: BEILSTEIN*, CA, CAPLUS, CJACS, TOXLIT
(*File contains numerically searchable property data)

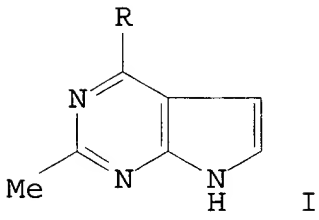


1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 98:193273 Quantitative aspects of the receptor binding of cytokinin agonists and antagonists. Iwamura, Hajime; Masuda, Noboru; Koshimizu, Koichi; Matsubara, Satoshi (Fac. Agric., Kyoto

Univ., Kyoto, 606, Japan). J. Med. Chem., 26(6), 838-44 (English) 1983. CODEN: JMCMAR. ISSN: 0022-2623.

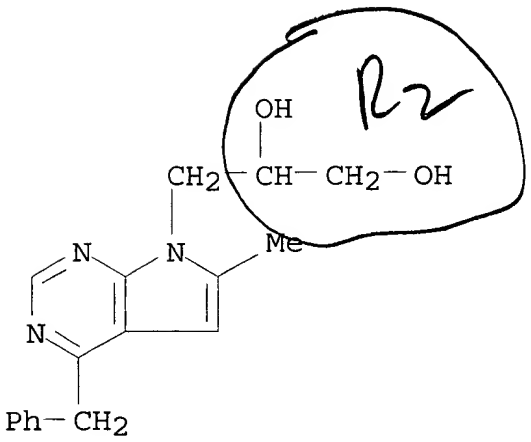
GI



I

AB Congeneric 2-methylpyrrolo[2,3-d]pyrimidines I, (R = anilino- or alkylamino) showed cytokinin and anticytokinin activities, depending on the structure of their 4-substituents, and the antagonistic nature of the latter was established kinetically. The effect of the substituent on these activities was analyzed quant. by using physicochem. parameters and regression anal. to give a single, common equation for both the agonist and antagonist. The results indicated that the max. width of the N4 substituents is an important factor both for binding to the receptor, thus the extent of activity, and for the quality of activity, agonistic or antagonistic. The electron-withdrawing effect and hydrophobicity of the substituents further enhance binding and, thus, activity, irresp. of the quality of the activity. These results coincide with and/or provide evidence for the hypothesis that in hormonal action, agonist binding causes a conformational change of an otherwise inactive receptor to the active form and that antagonists are species that bind similarly to the receptor but do not cause the effective conformational change.

L8 ANSWER 18 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 80765-74-8 REGISTRY
CN 1,2-Propanediol, 3-[6-methyl-4-(phenylmethyl)-7H-pyrrolo[2,3-d]pyrimidin-7-yl]- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 7H-Pyrrolo[2,3-d]pyrimidine, 1,2-propanediol deriv.
FS 3D CONCORD
MF C17 H19 N3 O2
LC STN Files: BEILSTEIN*, CA, CAPLUS, CJACS
(*File contains numerically searchable property data)



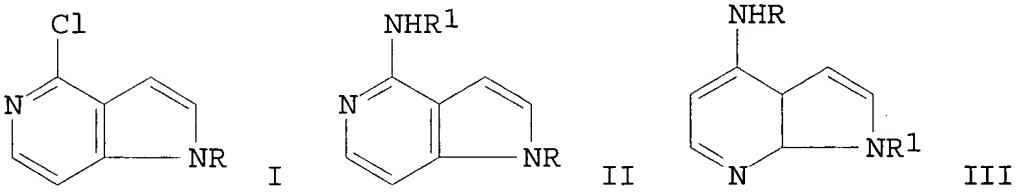
R2

102

1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 96:142732 New heterocyclic rearrangement: transformation of 1-substituted 4-(alkylamino)-1H-pyrrolo[3,2-c]pyridines into 1-substituted 4-(alkylamino)-1H-pyrrolo[2,3-b]pyridines (5-aza to 7-azaindoles). Bisagni, Emile; Legraverend, Michel; Lhoste, Jean Marc (Lab. Synth. Org., Inst. Curie, Orsay, 91405, Fr.). J. Org. Chem., 47(8), 1500-3 (English) 1982. CODEN: JOCEAH. ISSN: 0022-3263.

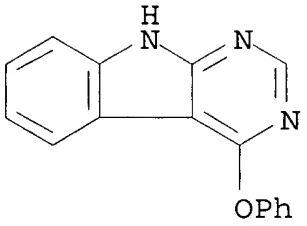
GI



AB Substitution of 1-alkyl-4-chloro-1H-pyrrolo[3,2-c]pyridines I (R = Me, CH2Ph) by R1NH2 [R1 = CH2Ph, CH2CHMeOH, (CH2)3OH] in excess afforded not only the expected 1-alkyl-4-(alkylamino)-1H-pyrrolo[3,2-c]pyridines II but also their 1-alkyl-4-(alkylamino)-1H-pyrrolo[2,3-b]pyridine isomers III resulting from the reversible isomerization of the preceding compds.

L8 ANSWER 19 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 76945-07-8 REGISTRY
CN 1H-Pyrimido[4,5-b]indole, 4-phenoxy- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C16 H11 N3 O
LC STN Files: CA, CAPLUS

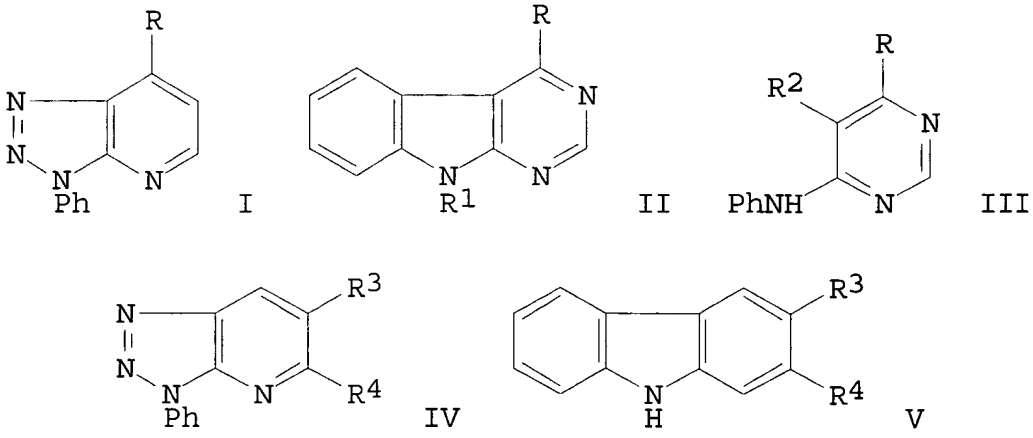
Searched By: Mary Hale 308-4258



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 94:139732 Triazolo[4,5-d]pyrimidines. VII. The photochemical transformation of 3-phenyl-3H-1,2,3-triazolo[4,5-d]pyrimidines into 9H-pyrimido[4,5-b]indoles. Higashino, Takeo; Hayashi, Eisaku; Matsuda, Hideaki; Katori, Tatsuhiko (Shizuoka Coll. Pharm., Shizuoka, 422, Japan). Heterocycles, 15(1), 483-7 (English) 1981. CODEN: HTCYAM. ISSN: 0385-5414.

GI

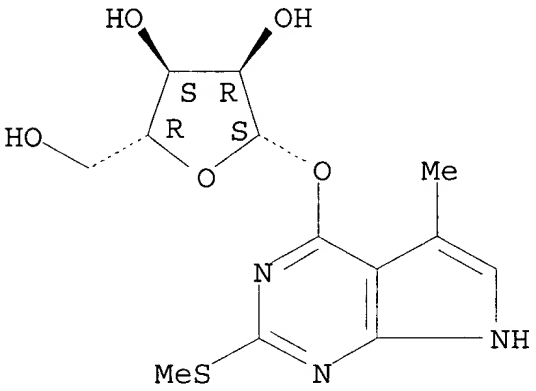


AB Photolysis of the triazolopyrimidines I (R = H, Cl, cyano, NHMe, NHCH2Ph, NMe2, OMe, OEt, OPh, Me) gave II (R1 = H). I with electron-attracting substituents gave II (R = 1,4-dioxan-2-yl, CH2OH, R1 = H; R = cyano, R1 = OMe) as well as the by-products III (R = H, Cl, cyano, R2 = Ph; R = Cl, cyano, OMe, R2 = H) from reaction with solvent. IV [R3 = H, R4 = H, Ph; R3 = CO2Et, Ac, R4 =

Me; R3R4 = (CH2)3, (CH2)4] similarly gave V.

L8 ANSWER 20 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 71263-32-6 REGISTRY
CN .beta.-D-Ribofuranoside, 5-methyl-2-(methylthio)-1H-pyrrolo[2,3-d]pyrimidin-4-yl (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1H-Pyrrolo[2,3-d]pyrimidine, .beta.-D-ribofuranoside deriv.
FS STEREOSEARCH
MF C13 H17 N3 O5 S
LC STN Files: BEILSTEIN*, CA, CAPLUS
(*File contains numerically searchable property data)

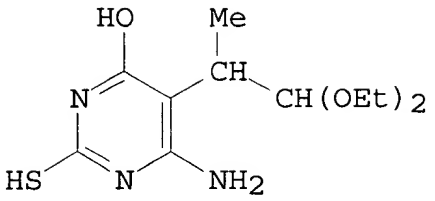
Absolute stereochemistry.



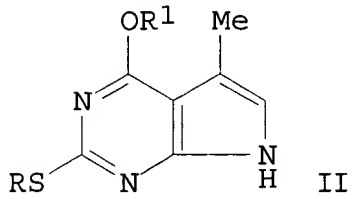
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 91:141154 Favored formation of an O-glycoside during ribosidation of 5-methyl-2-(methylthio)-7H-pyrrolo[2,3-d]pyrimidin-4(3H)-one. Luepke, Uwe; Seela, Frank (Gesamthochsch., Univ. Paderborn, Paderborn, D-4790, Fed. Rep. Ger.). Chem. Ber., 112(3), 799-806 (German) 1979. CODEN: CHBEAM. ISSN: 0009-2940.

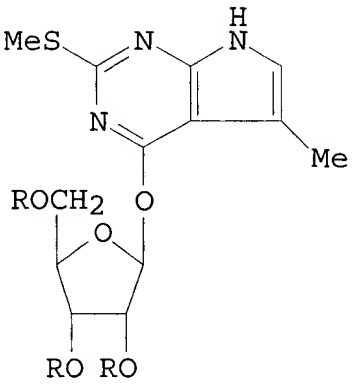
GI



I



II



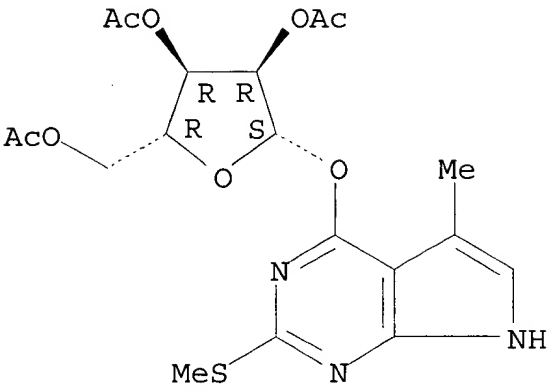
IV

AB Condensing (.+-.)-(EtO)2CHMeCHCH(CN)CO2Et and thiourea gave pyrimidine I. Alkylating I at 2-SH group with Me2SO4 followed by ring closure gave pyrrolo[2,3-d] pyrimidine II (R = Me, R1 = H) (III). Silylating III and then treating with 2,3,5-tri-O-acetyl-1-bromo-D-ribofuranose in the presence of Hg(II) salts gave nucleoside IV (R = Ac), not the N-7-glycoside from ribosidation of 2-(methylthio)-7H-pyrrolo[2,3-d]pyrimidin-4(3H)-one. Hydrolysis of IV (R = Ac) under mild conditions gave IV (R = H), which had a UV spectrum similar to II (R = R1 = Me) down to pH 2. At a lower pH hydrolysis of the glycosidic bond occurs.

L8 ANSWER 21 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 71239-13-9 REGISTRY
CN .beta.-D-Ribofuranoside, 5-methyl-2-(methylthio)-1H-pyrrolo[2,3-d]pyrimidin-4-yl, 2,3,5-triacetate (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1H-Pyrrolo[2,3-d]pyrimidine, .beta.-D-ribofuranoside deriv.
FS STEREOSEARCH
MF C19 H23 N3 O8 S
LC STN Files: BEILSTEIN*, CA, CAPLUS, SPECINFO
(*File contains numerically searchable property data)

Absolute stereochemistry.

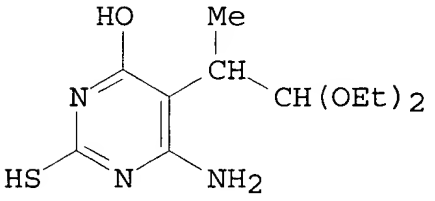
Searched By: Mary Hale 308-4258



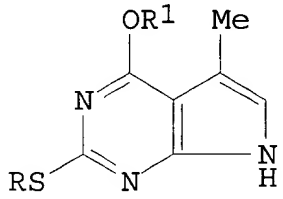
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 91:141154 Favored formation of an O-glycoside during ribosidation of 5-methyl-2-(methylthio)-7H-pyrrolo[2,3-d]pyrimidin-4(3H)-one. Luepke, Uwe; Seela, Frank (Gesamthochsch., Univ. Paderborn, Paderborn, D-4790, Fed. Rep. Ger.). Chem. Ber., 112(3), 799-806 (German) 1979. CODEN: CHBEAM. ISSN: 0009-2940.

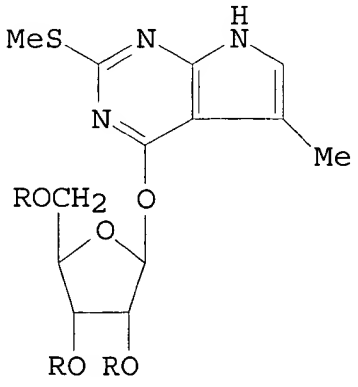
GI



I



II



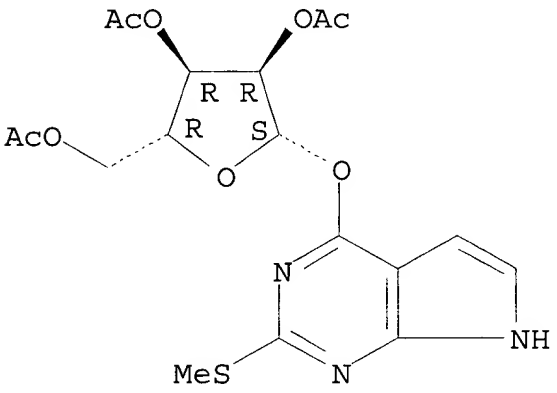
IV

AB Condensing (.+-.)-(EtO)2CHMeCHCH(CN)CO2Et and thiourea gave pyrimidine I. Alkylating I at 2-SH group with Me2SO4 followed by

ring closure gave pyrrolo[2,3-d] pyrimidine II (R = Me, R1 = H) (III). Silylating III and then treating with 2,3,5-tri-O-acetyl-1-bromo-D-ribofuranose in the presence of Hg(II) salts gave nucleoside IV (R = Ac), not the N-7-glycoside from ribosidation of 2-(methylthio)-7H-pyrrolo[2,3-d]pyrimidin-4(3H)-one. Hydrolysis of IV (R = Ac) under mild conditions gave IV (R = H), which had a UV spectrum similar to II (R = R1 = Me) down to pH 2. At a lower pH hydrolysis of the glycosidic bond occurs.

L8 ANSWER 22 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 29914-78-1 REGISTRY
CN 7H-Pyrrolo[2,3-d]pyrimidine, 2-(methylthio)-4-(.beta.-D-ribofuranosyloxy)-, 2',3',5'-triacetate (8CI) (CA INDEX NAME)
FS STEREOSEARCH
MF C18 H21 N3 O8 S
LC STN Files: BEILSTEIN*, CA, CAPLUS
(*File contains numerically searchable property data)

Absolute stereochemistry.



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

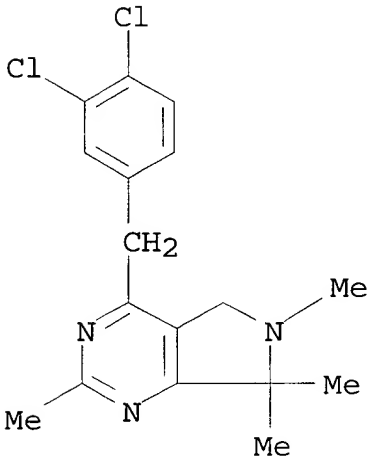
REFERENCE 1: 73:99151 Pyrrolopyrimidine nucleosides. VI. Synthesis of 1,3 and 7-.beta.-D-ribofuranosylpyrrolo[2,3-d]pyrimidines via silylated intermediates. Tolman, Richard L.; Tolman, Glen L.; Robins, Roland K.; Townsend, Leroy B. (Dep. of Chem., Univ. of Utah, Salt Lake City, Utah, USA). J. Heterocycl. Chem., 7(4), 799-806 (English) 1970. CODEN: JHTCAD.

AB Ribosylation of several silylated pyrrolo[2,3-d]pyrimidines by the Wittenberg procedure gave 1-, 3-8 and 7-ribosylpyrrolo[2,3-d]pyrimidine derivs. in high yield. Structure assignments were made on the basis of uv spectra of model compds. and confirmed by chem.

Searched By: Mary Hale 308-4258

conversion to derivs. of established structure. A convenient ribosylation procedure utilizing Ag2O, a halo sugar, and a silylated pyrrolo-[2,3-d]pyrimidine deriv. in MeCN was described.

L8 ANSWER 23 OF 23 REGISTRY COPYRIGHT 1997 ACS
RN 13957-89-6 REGISTRY
CN 5H-Pyrrolo[3,4-d]pyrimidine, 4-(3,4-dichlorobenzyl)-6,7-dihydro-2,6,7,7-tetramethyl- (8CI) (CA INDEX NAME)
FS 3D CONCORD
MF C17 H19 Cl2 N3
LC STN Files: CA, CAPLUS



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 66:104976 3-Amino-4-thiocarbamoyl-3-pyrrolines: their conversion into pyrrolo[3,4-d]pyrimidine-4-thiols. Cavalla, John F.; Webb, N. E.; Willis, J. A. D. (Parke, Davis Co., Hounslow, Engl.). J. Chem. Soc. C (8), 698-701 (English) 1967. CODEN: JSOOAX.
GI For diagram(s), see printed CA Issue.
AB The ready prepn. of 3-amino-1,2,2-trimethyl-4-thiocarbamoyl-3-pyrroline by the action of thioacetamide on the corresponding 3-amino-4-cyanopyrroline is described. This is treated with triethyl orthoformate, acid chlorides, and thioacetamide to give the corresponding dihydropyrrolo[3,4-d]pyrimidine-4-thiols, such as I, which are S-alkylated.

=> del his y